# KY Valid Course List

## HOW TO USE THIS DOCUMENT

This document contains a listing of course descriptions and parameters along with certifications that fit the parameters for a given course. The grade range and population information listed for each course are not absolute. Please choose the course that most closely represents the students in a given course.

EXAMPLE

John Q Middle School had 5th, 6th, and 7th grade students taking a Creative Art course. This course would be linked to course number **500711: Creative Art – Comprehensive**, which shows with a recommended grade range of 6th – 12th.

The courses listed in this document are not meant to replace the course titles and course numbers already in use at the school level. Schools will link their courses in the STI Valid Course List to courses listed in this document.

Schools may have created courses that are very unique in order to meet students' needs. If a course does not meet the definition or content of one contained in this document, please use course number **909999: School Defined Course**, and code the correct content through the LEAD report.

## CERTIFICATIONS

It is important to note that the certificates listed are the ones that fit *ALL* of the parameters for a specific course – there may be other certificates that can teach it with slightly more restrictive parameters.

It is very important to note that not all of the certificates listed under a specific course will meet the Highly Qualified Teacher standards as defined by The No Child Left Behind Act of 2001. Please refer to the Highly Qualified guidance documents located on the Education Professional Standards Board (EPSB) website at http://www.kyepsb.net/nclb.asp.

In addition to Highly Qualified considerations, please take note of the following information from ***The Program of Studies for Kentucky Schools Primary-12*** with regard to middle school courses that are offered for high school credit.

**High School Credit Earned in Middle School**

It is expected that most students will earn these credits during their high school years. However, local school districts may offer these courses to middle level students if the following criteria are met:

- the content and the rigor of the course is the same as established in the *Program of Studies*
- the students demonstrate mastery of the middle level content as specified in the *Program of Studies*
- the district has criteria in place to make reasonable determination that the middle level student is capable of success in the high school course
- **the middle level course is taught by teachers with either secondary or middle level certification with appropriate content specialization**

Although middle level courses list the Provisional and Standard Elementary Certificates, Grades 1-8 as allowable under the parameters of these courses, they will not meet the above requirements for courses that are offered for high school credit.

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Please contact Robin Chandler in KDE's Division of Curriculum at 502-564-2106 with any questions on content and curricula.

Please contact EPSB's Division of Certification at 502-564-4606 with any questions on credentials or permissions.

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# Science
## (300000)

# Science - Elementary/Middle
# (300100)

## 300150 - Physical Science 5

**Grade Level:** 5 - 5
**Credits:**
**Description:** Students will develop conceptual understandings of physical science through using scientific inquiry. In this course, students will experience physical science concepts of properties and changes of properties in matter, motions and forces, and transfer of energy, as described in Kentucky's Program of Studies for Intermediate Level Science. A scientific inquiry approach uses concrete hands-on experiences that require students to apply critical thinking skills.
**Content:** Physical Science
**Population:** General

## 300155 - Integrated Science 5

**Grade Level:** 5 - 5
**Credits:**
**Description:** In this course, students experience transfer of energy, structure of the Earth system, and structure and function in living systems, as outlined in Kentucky's Program of Studies for Intermediate Science. A scientific inquiry approach uses concrete hands-on experiences that require students to apply critical thinking skills.
**Content:** Integrated Science 1
**Population:** General

## 300160 - Life Science 6

**Grade Level:** 6 - 6
**Credits:**
**Description:** Students will develop conceptual understandings of life science through using scientific inquiry. In this course, students will experience life science concepts of structure and function in living systems, reproduction and heredity, regulation and behavior, populations and ecosystems, and diversity and adaptations of organisms, as described in Kentucky's Program of Studies for Middle Level Science. A scientific inquiry approach uses concrete hands-on experiences that require students to apply critical thinking skills.
**Content:** Life Science
**Population:** General

## 300166 - Integrated Science 6

**Grade Level:** 6 - 6
**Credits:**
**Description:** In this course, students experience motion and forces, Earth in the Solar System, regulation and behavior, and populations and ecosystems, as described in Kentucky's Program of Studies for Middle Level Science. A scientific inquiry approach uses concrete hands-on experiences that require students to apply critical thinking skills.

**Content:** Integrated Science 2
**Population:** General

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## 300169 - Grade 6: Environmental Studies

**Grade Level:** 6 - 6
**Credits:**
**Description:** This sixth grade course model is an integrated approach to the study of our environment and the factors that affect it. All content from the sixth grade science portion of the Program of Studies is presented in environmental contexts. Sample activities are provided to illustrate an instructional alliance that initiates student inquiry, builds understanding of scientific concepts, and promotes applications to real-life situations. The sample activities make connections to other content areas where the connection is natural and authentic. Thus, students are provided opportunities to reinforce and extend the content and process skills they have learned in other subject areas. Suggested activities are not comprehensive; that is, they are starting points to plan instruction for the required content and may need to be adjusted for individual students and school situations.
**Content:** Environmental Science
**Population:** General

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## 300170 - Earth Space Science 7

**Grade Level:** 7 - 7
**Credits:**
**Description:** Students will develop conceptual understandings of earth/space science through using scientific inquiry. In this course, students will experience earth/space concepts of structure of the Earth system, Earth's history, and Earth in the Solar System, as described in Kentucky's Program of Studies for Middle Level Science. A scientific inquiry approach uses concrete hands-on experiences that require students to apply critical thinking skills.
**Content:** Earth-Space Science
**Population:** General

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## 300177 - Integrated Science 7

**Grade Level:** 7 - 7
**Credits:**
**Description:** In this course, students experience properties and changes of properties in matter, Earth's history, reproduction and heredity, and diversity and adaptations of organisms, as described in Kentucky's Program of Studies for Middle Level Science. A scientific inquiry approach uses concrete hand-on experiences that requires students to apply critical thinking skills
**Content:** Integrated Science 3
**Population:** General

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## 300188 - Integrated Science 8

**Grade Level:** 8 - 8
**Credits:**
**Description:** In this course, students will be engaged in activities which will develop their understandings about Life, Earth and Space, and Physical Science concepts, as well as unifying ideas and concepts such as Energy Transformations and Interdependence as described in Kentucky's Program of Studies for Middle Level Science. A scientific inquiry approach involving the use of concrete hands-on experiences that requires students to apply critical thinking skills is embedded in this course.

**Content:** Integrated Science 4
**Population:** General

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## 300195 - Forensics (6-8)

**Grade Level:** 6 - 8
**Credits:** 0
**Description:** This course is a problem-based inquiry course dealing with Forensic sciences.
**Content:** Forensic Science
**Population:** General

# Science - High School Life Science (302600)

## 302601 - Life Science / Biology 1

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Students develop a conceptual understanding of life science, as outlined in Kentucky's Program of Studies, through the use of scientific inquiry. They experience life science concepts such as the cellular organization; molecular basis of heredity; biological change; interdependence of organisms; matter, energy and organization in living systems; and behavior of organisms. A scientific inquiry approach uses concrete, hands-on experiences that require students to apply critical-thinking skills. It is suggested that the physical science course be taken before either Earth/space science or life science.
**Content:** Life Science
**Population:** General

## 302602 - Biology II

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This is a second-level biology course for average or college track students.
**Content:** Biology
**Population:** General

## 302603 - Honors Biology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course allows students to attain all the concepts contained in the description for Biology, with the opportunity provided for students to progress ahead of the non-honors course.
**Content:** Biology
**Population:** General

## 302611 - Biochemistry

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Major concepts addressed in this course include biochemical evolution, macromolecules, metabolism, glycolysis, photosynthesis, and respiration.
**Content:** Biochemistry
**Population:** General

## 302612 - Botany

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course focuses on the study of the plant kingdom, including plant evolution, classification, plant ecology, and domestic plants.
**Content:** Botany
**Population:** General

## 302613 - Microbiology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course focuses on the study of microbiological techniques, viruses, fungi, protozoans, bacteria, and pathogenic organisms.
**Content:** Microbiology
**Population:** General

## 302614 - Ecology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Major concepts addressed in this course include biotic and abiotic factors, energy flow, mineral cycles, ecosystems, and biomes.
**Content:** Ecology
**Population:** General

## 302615 - Zoology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course focuses on the study of the animal kingdom, including organ systems and dissection.
**Content:** Zoology
**Population:** General

## 302616 - Forensics

**Grade Level:** 9 - 12
**Credits:** 1 credit
**Description:** This course is a problem-based inquiry course dealing with Forensic sciences.
**Content:** Forensic Science
**Population:** General

## 302618 - Medical Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This one-credit course uses health occupations as a vehicle to present the life science content

outlined in the Program of Studies. The course is interdisciplinary in nature and integrates academic expectations and activities with the disciplines of life science, mathematics, health, social studies, language arts, arts and humanities, and vocational studies. During their study of medical science, students will gain an understanding of the normal structure and function of the human body through scientific inquiry. Life science conceptual understandings, applications, and connections make this science relevant to students. Anatomy, physiology, physics, and chemistry concepts are reinforced with real-life analogies and health-related examples are used to illustrate potentially difficult scientific concepts.
**Content:** Medical Science for the Life Science Component within the Science Requirement
**Population:** General

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## 302621 - Marine Biology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course addresses key concepts related to marine science, including ocean zones, seawater, habitats, and marine taxonomy.
**Content:** Marine Biology
**Population:** General

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## 302623 - IB Environmental Systems

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course code is applicable only to schools enrolled in the International Baccalaureate program. This course may include, but is not limited to, the topics from the Environmental Systems Standard Level syllabus specified by the International Baccalaureate Organization. Topics may include: systems and models, the ecosystem, global cycles and physical systems, human population and carrying capacity, analyzing ecosystems, impacts of resource exploitation and conservation & biodiversity, pollution management.
**Content:** Ecology
**Population:** General

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## 302631 - Anatomy

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Major concepts addressed in this course include plant structure, animal structure, tissues, organs, and systems.
**Content:** Anatomy and Physiology
**Population:** General

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## 302643 - Pre IB Biology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Biology.
**Content:** Life Science
**Population:** General

## 302644 - IB Biology 2

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Biology.
**Content:** Life Science
**Population:** General

## 302645 - IB Biology 3

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Biology.
**Content:** Life Science
**Population:** General

## 302646 - AP Biology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** AP Biology is designed to be the equivalent of a college introductory biology course usually taken by biology majors during their first year. It aims to provide students with the conceptual framework, factual knowledge and analytical skills necessary to deal critically with the rapidly changing science of biology. The two main goals of AP Biology are to help students develop a conceptual framework for modern biology and to help students gain an appreciation of science as a process. The ongoing information explosion in biology makes these goals even more challenging. Primary emphasis in an Advanced Placement Biology course should be on developing an understanding of concepts rather than on memorizing terms and technical details. Essential to this conceptual understanding are the following: a grasp of science as a process rather than as an accumulation of facts; personal experience in scientific inquiry; recognition of unifying themes that integrate the major topics of biology; and application of biological knowledge and critical thinking to environmental and social concerns. AP Biology is representative of the topics covered by the AP exam. Accordingly, goals have been set for percentage coverage of three general areas: Â· Molecules and Cells, 25% Â· Heredity and Evolution, 25% Â· Organisms and Populations, 50% Students should have successfully completed high school biology and high school chemistry. NOTE: If this course is to be used as a graduation requirement it must adhere to the content requirements of the Program of Studies.
**Content:** AP Biology
**Population:** General

## 302651 - Human Physiology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course focuses on the study of the human body, including nutrition concepts, digestive system, circulatory system, nervous system, and the reproductive system.
**Content:** Anatomy and Physiology
**Population:** General

## 302655 - Nutritional and Food Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This interdisciplinary course emphasizes the Life Sciences, as described in Kentucky's Program of Studies, via the context of nutrition and food science.
**Content:** Nutritional and Food Science for the Life Science Component within the Science Requirement
**Population:** General

## 302661 - Genetics

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Major concepts addressed in this course include mutation, heredity, genetic principles, DNA and RNA, recombination, and viruses.
**Content:** Life Science
**Population:** General

## 302680 - AgriBiology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This one-credit course uses agricultural contexts to present the life science content outlined in the Program of Studies. As students study practical agricultural concepts, they apply scientific ways of thinking and working to real-life problems. During their study of agri-biology, students perform many practical tasks. They create models, extract DNA, analyze DNA fingerprints, construct tables and graphs to classify and analyze data, and test soils. Students also participate in cooperative and collaborative groups, use technology to solve problems, and participate in field trips to apply scientific concepts to agricultural and environmental problems. Students develop an understanding of many concepts such as cell structure and function, morphology and physiology of agriculturally significant animals, heredity principles and inheritance patterns, genetic engineering, animal behavior, biological change, interdependence of plants and animals, and the flow of matter and energy through ecosystems.
**Content:** Agribiology for Life Science Credit
**Population:** General

## 302685 - Agriscience

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This is an interdisciplinary course that deals with the Life Sciences, as described in Kentucky's Program of Studies, via agricultural contexts.
**Content:** Agriscience for Life Science Credit
**Population:** General

## 302698 - Intro Biology with Earth/Space Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Students develop a conceptual understanding of Biology and Earth/Space Science through the use of scientific inquiry. They experience biology and Earth/space science concepts, as outlined in Kentucky's

Program of Studies, such as structure and function of cells; molecular basis of heredity; biological change; changes in the Earth system; interdependence of organisms; matter, energy and organization in living systems; and the behavior of organisms. A scientific inquiry approach uses concrete hands-on experiences that require students to apply critical thinking skills. For this model the suggested sequence is Introductory Physics with Earth/Space Science, Introductory Chemistry with Earth/Space Science, and Introductory Biology with Earth/Space Science.
**Content:** Life Science
**Population:** General

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## 302699 - Special Topics: Life Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** The content of this Life Science course is determined by the teacher/student.
**Content:** Life Science
**Population:** General

# Science - High School Integrated
# (303000)

## 303091 - Integrated Science I

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This inquiry based introductory course is designed around the themes of patterns of change and systems, order, and organization. Students examine the organization of the universe by beginning with the fundamental laws that give order, continue with the way these laws affect the Earth and the organization of life, and conclude with how life responds to these laws. Guiding Questions (based on content described in Kentucky's Program of Studies for High School Science): How can we use forces and the laws of motion to understand the motion of objects? How do observable structures on Earth's surface enable us to determine the internal energy sources of the Earth? How can we observe the effect of the Sun's energy on the Earth's surface and atmosphere? How does Earth's internal and external sources of energy affect Earth's geochemical cycles? How are organisms dependent on the cycling of atoms and molecules, energy flow, and each other in an ecosystem? How do behavioral responses to stimuli ensure individual survival and reproductive success for species? When energy is transferred what forms can it assume?
**Content:** Integrated Science 1
**Population:** General

## 303092 - Integrated Science II

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** The theme of this inquiry based course is constancy and change over time. Students examine constancy in the natural world as well as changes that continually occur. Students examine the formation of matter and energy, properties and interactions, formation of the solar system, and conclude with the constancy of matter and energy in living systems. Guiding Questions(based on content described in Kentucky's Program of Studies for High School Science): What are the components and structure of the universe? How are chemical and physical properties of matter related to the structure of matter? What happens when energy interacts with matter? What evidence can be found that the Earth and solar system have changed over time? What evidence suggests that species change over time and how is biological classification used to explain relationships among diverse organisms? What processes are involved in the flow of matter and energy through and between living systems and the physical environment? How does the law of conservation of energy help me understand the movement of energy? Approval to offer this course must be made on an individual basis. Approval will be based upon the relative proportions of science disciplines addressed in the course syllabus and the credentials of the assigned teacher.
**Content:** Integrated Science 2
**Population:** General

## 303093 - Integrated Science III

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This inquiry based course is developed around the themes of evidence, models, and explanation. Students examine the evidence and models that scientists use to explain the natural world in order to expand on the concepts introduced in Integrated Science I and II. The course is designed to promote ways of applying

and integrating scientific ways of thinking to daily life. Guiding Questions(based on content described in Kentucky's Program of Studies for High School Science): How do observable properties of matter enable us to determine the structure of atoms? What evidence can we find that the universe is in the process of continuous change? What causes chemical reactions that affect our daily lives? How are Earth's chemical reservoirs affected by the internal and external sources of energy? How do cell structures, functions, and processes affect living things? How does DNA transfer genetic information of organisms to the next generation? How does the tendency for everything to become less organized help me understand the movement of energy? Approval to offer this course must be made on an individual basis. Approval will be based upon the relative proportions of science disciplines addressed in the course syllabus and the credentials of the assigned teacher.
**Content:** Integrated Science 3
**Population:** General

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## 303099 - Special Topics, Interdisciplinary

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course description is reserved for interdisciplinary classes involving one or more content areas other than science. This code is to be used when credit for the class is given in science and the teacher of record is science certified. Appropriate certifications to offer this class shall be determined based upon the relative proportions of science disciplines included in the course syllabus.
**Content:** Integrated Science 4
**Population:** General

# Science - High School Physical Sciences
# (304000)

## 304021 - Physical Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Students develop a conceptual understanding of physical science, as outlined in Kentucky's Program of Studies, through the use of scientific inquiry. They experience physical science concepts such as structure of atoms, structure and properties of matter, chemical reactions, motions and forces, conservation of energy and increase in disorder, and interactions of energy and matter. A scientific inquiry approach uses concrete, hands-on experiences that require students to apply critical-thinking skills. It is suggested that the physical science course be taken before either Earth/space science or life science.
**Content:** Physical Science
**Population:** General

## 304521 - Chemistry I

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course focuses on problem solving techniques; bonding; equilibrium; equations. Students develop a conceptual understanding of chemistry content, included in the Program of Studies, through the use of scientific inquiry.
**Content:** Chemistry
**Population:** General

## 304522 - Chemistry II

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This college level course focuses on the study of the structure of matter, chemical kinetics, solution chemistry, and laboratory techniques.
**Content:** Chemistry
**Population:** General

## 304523 - Pre IB Chemistry 1

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Chemistry.

**Content:** Chemistry
**Population:** General

## 304524 - IB Chemistry 2

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Chemistry.
**Content:** Chemistry
**Population:** General

## 304525 - IB Chemistry 3

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Chemistry.
**Content:** Chemistry
**Population:** General

## 304526 - AP Chemistry

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** AP Chemistry is the equivalent to a general Chemistry course usually taken in the first year of college. It is designed to comply with College Board recommendations to prepare students for an AP Exam in Chemistry. The course helps build students' understanding of the nature and reactivity of matter. The course begins with the structure of atoms, molecules, and ions; then students explore how that structure lets us predict and quantify the chemical reactions that substances undergo. AP Chemistry will enable you to develop an understanding of chemical concepts and become skilled at solving quantitative chemical problems through a combination of instructional activities. Suggested pre-requisites are Introduction to Chemistry and Algebra II. AP Chemistry is a full credit, two-semester course. NOTE: If this course is to be used as a graduation requirement it must adhere to the content requirements of the Program of Studies.
**Content:** AP Chemistry
**Population:** General

## 304527 - Honors Chemistry

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course allows students to attain all the concepts contained in the description for Chemistry, with the opportunity provided for students to progress ahead of the non-honors course.
**Content:** Chemistry
**Population:** General

## 304598 - Intro Chemistry with Earth/Space Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Students develop a conceptual understanding of Chemistry and Earth/Space Science through the use of scientific inquiry. They experience chemistry and Earth/space science concepts such as the structure of atoms, structure and properties of matter, chemical reactions, geochemical cycles, and formation and ongoing changes of the universe. A scientific inquiry approach uses concrete hands-on experiences that require students to apply critical thinking skills. For this course, the suggested sequence is Introductory Physics with Earth/Space Science, Introductory Chemistry with Earth/Space Science, and Introductory Biology with Earth/Space Science.
**Content:** Chemistry
**Population:** General

## 304599 - Special Topics: Chemistry

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** The content of this Chemistry course is determined by the teacher/student.
**Content:** Chemistry
**Population:** General

## 304611 - Earth Space Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Students develop a conceptual understanding of Earth/space science, as outlined in Kentucky's Program of Studies, through the use of scientific inquiry. They experience Earth/space concepts such as energy in the Earth system, geochemical cycles, formation and ongoing changes of the Earth system, and formation and ongoing changes of the universe. A scientific inquiry approach uses concrete, hands-on experiences that require students to apply critical thinking skills. It is suggested that the physical science course be taken before either Earth/space science or life science.
**Content:** Earth-Space Science
**Population:** General

## 304612 - Astronomy

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course focuses on the study of basic astronomical principles, stars, planets, and galaxies.
**Content:** Astronomy
**Population:** General

## 304613 - Meteorology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course focuses on the study of weather, the atmosphere, clouds, and frontal weather conditions.
**Content:** Earth Science
**Population:** General

## 304614 - Oceanography

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course focuses on the study of ocean landscapes, waves, currents, ocean ecology, and estuaries.
**Content:** Oceanography
**Population:** General

## 304620 - Environmental Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course addresses topics of environmental interest/impact such as water pollution, conservation, forestry and air pollution.
**Content:** Environmental Science
**Population:** General

## 304621 - Honors Earth Space Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course allows students to attain all the concepts contained in the description for Earth/Space Science, with the opportunity provided for students to progress ahead of the non-honors course.
**Content:** Earth-Space Science
**Population:** General

## 304622 - AP Environmental Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** NOTE: If this course is to be used as a graduation requirement it must adhere to the content requirements of the Program of Studies. This AP course focuses on earth systems & resources, the living world, population, land & water use, energy resources and consumption, pollution and global change.
**Content:** AP Environmental Science
**Population:** General

## 304631 - Geology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Major concepts addressed in this course include erosion, glaciation, mountain formation, and diastrophism.
**Content:** Geology
**Population:** General

## 304698 - Principles of Technology with Earth/Space Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Students develop understandings of traditional physics and Earth/space science concepts, as outlined in Kentucky's Program of Studies, through the use of scientific inquiry. Students investigate concepts of force, work, efficiency, rate, and energy. Hands-on inquiry experiences develop problem-solving and critical-thinking skills. Students apply conceptual understandings to industrial, technological, and personal situations. It is suggested that Principles of Technology with Earth/Space Science be taken before either Introductory Chemistry with Earth/Space Science or Introductory Biology with Earth/Space Science.
**Content:** Earth-Space Science
**Population:** General

## 304699 - Special Topics: Earth/Space Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** The content of this Earth/Space course is determined by the teacher/student.
**Content:** Earth-Space Science
**Population:** General

## 304811 - Aerospace Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** In this course, students study conceptual ideas and understandings related to aerospace sciences.
**Content:** Physics
**Population:** General

## 304821 - Physics I

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Students develop a conceptual understanding of physics content through the use of scientific inquiry. They experience concepts such as motions and forces, conservation of energy and the increase in disorder, interactions of energy and matter. A scientific inquiry approach uses concrete hands-on experiences that require students to apply critical thinking skills.
**Content:** Physics
**Population:** General

## 304823 - IB Physics

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Physics.
**Content:** Physics
**Population:** General

## 304824 - Honors Physics

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Honors Physics is a one-year high school course for students with career plans in science, math, engineering, medicine, and similar fields. This course provides a track for students who want to learn physics as a high level, but who are not interested in the full AP Physics B program. It is an appropriate choice for students interested in medical careers.
**Content:** AP Physics
**Population:** General

## 304825 - AP Physics C: Mechanics

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course ordinarily forms the first part of the college sequence that serves as the foundation in physics for students majoring in the physical sciences or engineering. The sequence is parallel to or preceded by mathematics courses that include calculus. Methods of calculus are used wherever appropriate in formulating physical principles and in applying them to physical problems. The sequence is more intensive and analytic than that in the B course. Strong emphasis is placed on solving a variety of challenging problems, some requiring calculus. The subject matter of the C course is principally mechanics and electricity and magnetism, with approximately equal emphasis on these two areas. The C course is the first part of a sequence which in college is sometimes a very intensive one-year course but often extends over one and one-half to two years, with a laboratory component. NOTE: If this course is to be used as a graduation requirement it must adhere to the content requirements of the Program of Studies.
**Content:** AP Physics
**Population:** General

## 304826 - AP Physics C: Electricity / Magnetism

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course ordinarily forms the first part of the college sequence that serves as the foundation in physics for students majoring in the physical sciences or engineering. The sequence is parallel to or preceded by mathematics courses that include calculus. Methods of calculus are used wherever appropriate in formulating physical principles and in applying them to physical problems. The sequence is more intensive and analytic than that in the B course. Strong emphasis is placed on solving a variety of challenging problems, some requiring calculus. The subject matter of the C course is principally mechanics and electricity and magnetism, with approximately equal emphasis on these two areas. The C course is the first part of a sequence which in college is sometimes a very intensive one-year course but often extends over one and one-half to two years, with a laboratory component. NOTE: If this course is to be used as a graduation requirement it must adhere to the content requirements of the Program of Studies.
**Content:** AP Physics
**Population:** General

## 304827 - AP Physics B

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course provides a systematic introduction to the main principles of physics and emphasizes the development of conceptual understanding and problem-solving ability using algebra and trigonometry, but rarely calculus. In most colleges, this is a one-year terminal course including a laboratory component and is not

the usual preparation for more advanced physics and engineering courses. However, the B course provides a foundation in physics for students in the life sciences, pre-medicine, and some applied sciences, as well as other fields not directly related to science. NOTE: If this course is to be used as a graduation requirement it must adhere to the content requirements of the Program of Studies.
**Content:** AP Physics
**Population:** General

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## 304890 - IB Design Technology

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** This course code is applicable only to schools enrolled in the International Baccalaureate program. Design Technology is designed to teach students how to adapt to new experiences, and to approach problems with the appropriate skills and techniques in design, as specified by the International Baccalaureate Organization.
**Content:** Principles of Technology (Applied Physics)
**Population:** General

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## 304898 - Intro Physics with Earth/Space Science

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** Students develop a conceptual understanding of physics and Earth/space science content through the use of scientific inquiry. They experience physics and Earth/space science concepts such as motions and forces, conservation of energy and the increase in disorder, interactions of energy and matter, and energy in the Earth system. A scientific inquiry approach uses concrete hands-on experiences that require students to apply critical thinking skills. For this course, the suggested sequence is Introductory Physics with Earth/Space Science, Introductory Chemistry with Earth/Space Science, and Introductory Biology with Earth/Space Science.
**Content:** Physics
**Population:** General

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## 304899 - Special Topics: Physics/Physics II

**Grade Level:** 9 - 12
**Credits:** 1
**Description:** The content of this Physics course is determined by the teacher/student.
**Content:** Physics
**Population:** General